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| 10/066,212 | 02/01/2002 | Takashi Ishizaka | 02-152 | 5661 |

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Gregory P. LaPointe
BACHMAN & LaPOINTE, P.C.
Suite 1201
900 Chapel Street
New Haven, CT 06510-2802

EXAMINER

GODDARD, BRIAN D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2161 | |

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/066,212 | Applicant(s) ISHIZAKA, TAKASHI | |
| | Examiner Brian Goddard | Art Unit 2161 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 August 2005 has been entered.

2. Claims 1-10 are pending in this application. Claims 1, 2 and 8-10 are independent claims. In the Amendment filed 25 August 2005 and entered with the RCE of 26 October 2005, claims 1, 2 and 8-10 were amended. This action is non-final.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,457,021 issued to Berkowitz et al. (hereafter Berkowitz '021) in view of U.S. Patent No. 6,009,502 issued to Boeuf (hereafter Boeuf '502) and further in view of U.S. Patent No. 5,860,136 issued to Fenner (hereafter Fenner '136).

Claim 1:

Regarding Claim 1, Berkowitz '021 discloses: a data processing system having a storage device for recording data which belongs to an object representing a target event (Berkowitz '021: Abstract), in which one or more tables are stored in the storage device, each of the tables defining the number of data recordable areas (Berkowitz '021: col. 2, Ins. 13-20; col. 16, Ins. 24-31 – the look-aside table and transaction information reads on tables), and each of the objects and recording areas in each table individualized by an identifier capable of taking numerical form (Berkowitz '021: col. 16, Ins. 32-41 – note the look-aside table contains RECIDs which read on identifiers), said system comprising:

- specification means for specifying an identifier related to the data concerned and the number of recording areas of the table to be accessed in response to a data accessing request (Berkowitz '021: col. 9, Ins. 30-36; col. 16, ln. 63 to col. 17, ln. 2).

However, Berkowitz '021 does not explicitly disclose:

- that the tables define the number of data recordable areas per object;
- range of area determining means for determining the range of recording areas in the table to be accessed by executing a predetermined computational algorithm which uses as variable factors at least the identifier and the number of recording areas specified by said specification means; and
- recording area managing means for recording the number of data recording areas assignable to each object in each of said one or more tables;

- wherein said specification means specifies the number of recording areas of the table to be accessed by checking said recording area managing means in response to the data accessing request.

Boeuf '502 discloses:

- range of area determining means for determining the range of recording areas in the table to be accessed by executing a predetermined computational algorithm which uses as variable factors at least the identifier and the number of recording areas specified by said specification means (Boeuf '502: col. 3, ln. 21 to col. 5, ln. 20 – note that the data-wrapping algorithm of Boeuf '502, described in detail in this citation, reads on a range of area computational algorithm); and
- wherein said specification means specifies the number of recording areas of the table to be accessed by utilizing the number of data recording areas assignable to each object in each of said one or more tables (Boeuf '502: col. 3, ln. 21 to col. 5, ln. 20 – note that $LFnb$ (and N) represent the number of blocks in the logging file, which is equivalent to the number of data recording areas assignable to each object in each of said one or more tables).

Fenner '136 discloses:

- recording area managing means (Fenner '136: symbol counter 106 & symbol use count table 801 – See Figs. 5-7) for recording the number of data recording areas assignable to each object in each of said one or more tables (Fenner '136: symbol count – col. 27, lns. 12-46); and

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- wherein said specification means specifies the number of recording areas of the table to be accessed by checking said recording area managing means in response to the data accessing request (Fenner '136: See Figs. 5-7 and col. 27, Ins. 12-46).

It would have been obvious to a person having ordinary skill in the art to combine the range determining means of Boeuf '502 with the record manager of Berkowitz '021. The motivation to combine is suggested by Boeuf '502, which discloses that use of the Boeuf '502 algorithm results in better performance in file management systems such as that of Berkowitz '021 (Boeuf '502: col. 2, Ins. 14-26). It would have been further obvious to one of ordinary skill in the art at the time the invention was made to add the recording area managing means of Fenner '136 to the combination of Berkowitz '021 and Boeuf '502 to actively track Boeuf's number of recording areas assignable to each object in each of said one or more tables, to obtain the invention as claimed. The motivation to combine is suggested by Fenner '136, which discloses that use of the Fenner '136 algorithm provides a faster and more efficient method for performing a relational join operation, such as would be advantageous to the systems of Berkowitz and Boeuf.

Claim 2:

Regarding Claim 2, Berkowitz '021 discloses: a data processing system having a storage device for recording data which belongs to an object representing a target event (Berkowitz '021: Abstract), in which one or more tables are stored in the storage device, each of the tables defining the number of data recordable areas (Berkowitz '021:

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col. 2, Ins. 13-20; col. 16, Ins. 24-31 – the look-aside table and transaction information reads on tables), and each of the objects and recording areas in each table individualized by an identifier capable of taking numerical form (Berkowitz '021: col. 16, Ins. 32-41 – note the look-aside table contains RECIDs which read on identifiers), said system comprising:

- a data recording module for accessing said storage device and recording data in recording areas of any one of tables in response to input of the data concerned and a data recording request, and a data retrieval module for accessing said storage device and retrieving the data concerned from one of the tables in response to a retrieval request (Berkowitz '021: col. 9, Ins. 30-36; col. 16, ln. 63 to col. 17, ln. 2), wherein
- one of said data recording and retrieval modules is configured to specify an identifier related to the data to be targeted and the number of recording areas of the table to be accessed (Berkowitz '021: col. 9, Ins. 30-36; col. 16, ln. 63 to col. 17, ln. 2).

However, Berkowitz '021 does not explicitly disclose:

- that the tables define the number of data recordable areas per object;
- determine the range of recording areas in the table to be accessed by executing a predetermined computational algorithm which uses as variable factors at least the identifier and the number of recording areas specified, and access the range of areas determined; and

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- recording area managing means for recording the number of data recording areas assignable to each object in each of said one or more tables;
- wherein said specification means specifies the number of recording areas of the table to be accessed by checking said recording area managing means in response to the data accessing request.

Boeuf '502 discloses:

- determine the range of recording areas in the table to be accessed by executing a predetermined computational algorithm which uses as variable factors at least the identifier and the number of recording areas specified, and access the range of areas determined (Boeuf '502: col. 3, ln. 21 to col. 5, ln. 20 – note that the data-wrapping algorithm of Boeuf '502, described in detail in this citation, reads on a range of area computational algorithm).

Fenner '136 discloses:

- recording area managing means (Fenner '136: symbol counter 106 & symbol use count table 801 – See Figs. 5-7) for recording the number of data recording areas assignable to each object in each of said one or more tables (Fenner '136: symbol count – col. 27, lns. 12-46); and
- wherein said specification means specifies the number of recording areas of the table to be accessed by checking said recording area managing means in response to the data accessing request (Fenner '136: See Figs. 5-7 and col. 27, lns. 12-46).

It would have been obvious to a person having ordinary skill in the art to combine the range determining means of Boeuf '502 with the record manager of Berkowitz '021. It would have been further obvious to one of ordinary skill in the art at the time the invention was made to add the recording area managing means of Fenner '136 to the combination of Berkowitz '021 and Boeuf '502 to actively track Boeuf's number of recording areas assignable to each object in each of said one or more tables, to obtain the invention as claimed. The motivation to combine is on the same basis as Claim 1 (supra).

Claims 3-4, and 7:

Regarding Claims 3-4, and 7, Berkowitz '021, Boeuf '502 and Fenner '136 in combination disclose all the limitations of Claim 1 (supra). Additionally, Berkowitz '021, Boeuf '502 and Fenner '136 in combination disclose:

- (Claim 3) wherein said specification means specifies an object identifier (M) and the number of recording areas (N) per customer of the table to be accessed, and said range of area determining, means determines the range or recording areas capable of being accessed in the table concerned by executing the following computational algorithm from the identifier (M) and the number of recording areas (N) specified:

$$N * [M-1] + 1 \sim N * M,$$

where the term inside the square brackets indicates an integral value calculated by a Gauss function (Boeuf '502: col. 4, Ins. 27-36 and col. 4, In. 53 – note that the head key calculation reads on the lower bound and the tail key reads on the

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upper bound; further note that since the OBK (Old Base Key) of Boeuf '502 subsumes all previous records, the calculation of the OBK reads on a Gauss function).

- (Claim 4) wherein, said specification means specifies an identifier ((alpha)a) of a recording area of a first table in which data belonging to the target object is to be recorded, as well as the number of recording areas (Na) per object of the first table and the number of recording areas (Nb) per object of a second table in which data associated with the first object by the target object are to be recorded, and said range of area determining means determines the range of data recording areas capable of being accessed in the second table by executing the following computational algorithm from the identifier ((alpha)a) and the respective numbers of recording areas (Na, Nb):

$$[(\alpha)a / Na] * Nb + 1 \sim [(\alpha)a / Na + 1] * Nb,$$

where the term inside the square brackets indicates an integral value calculated by a Gauss function (Boeuf '502: col. 4, Ins. 27-36 and col. 4, In. 53 – note that the head key calculation reads on the lower bound and the tail key reads on the upper bound; further note that since the OBK (Old Base Key) of Boeuf '502 subsumes all previous records, the calculation of the OBK reads on a Gauss function).

- (Claim 7) wherein the recording areas are formed consecutively in each individual table on a row or column basis, and the identifier is a row or column

number in the table concerned (Boeuf '502: col. 2, lns. 14-19 – note data wrapping reads on consecutive recording areas).

Claims 8-10:

Claims 8-10 are rejected on substantially the same basis as claims 1 and 2 above. See the discussions regarding claims 1 and 2 above for the details of this disclosure. Specifically, Berkowitz '021, Boeuf '502 and Fenner '136 in combination disclose a data processing method, a computer-readable recording medium and a computer program for implementing the functionality of the systems claimed in claims 1 and 2.

4. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkowitz '021, Boeuf '502 and Fenner '136 in view of U.S. Patent No. 5,864,842 issued to Pederson et al. (hereafter Pederson '842).

Claims 5-6:

Examiner notes means plus function language in Claims 5-6 as per the three prong test in MPEP 2181. Examiner will interpret claim language in light of the specification, in particular pp. 14-15.

Regarding Claims 5-6, Berkowitz '021, Boeuf '502 and Fenner '136 in combination disclose all the limitations of Claim 1 (supra). Additionally, Berkowitz '021, Boeuf '502 and Fenner '136 in combination disclose:

- (Claim 5) further comprising:
 - retrieval means for executing request accepted, wherein

- said specification means specifies an identifier ((alpha)a) of a corresponding recording area from the first table on the basis of the retrieval condition decomposed for the first table, as well as the number of recording areas (Na) per object of the first table and the number of recording areas (Nb) per object of the second table (Boeuf '502: col. 4, Ins. 27-36 and col. 4, In. 53 – note that the head key calculation reads on the lower bound and the tail key reads on the upper bound), and
- said range of area determining means determines the range of recording areas to be retrieved in the second table by executing the following computational algorithm from the identifier (aa) and the respective numbers of recording area: (Na, Nb):

$$[(\alpha)a/Na] * Nb + 1 \sim [(\alpha)a/Na + 1] * Nb,$$

where the term inside the square brackets indicates an integral value calculated by a Gauss function (Boeuf '502: col. 4, Ins. 27-36 and col. 4, In. 53 – note that the head key calculation reads on the lower bound and the tail key reads on the upper bound; further note that since the OBK (Old Base Key) of Boeuf '502 subsumes all previous records, the calculation of the OBK reads on a Gauss function).

- (Claim 6) further comprising:
 - retrieval means for executing the request accepted, wherein said
 - specification means specifies an identifier ((alpha)a) of a corresponding recording area from the first table on the basis of the retrieval condition

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decomposed for the first table, as well as the number of recording areas (Na) per object of the first table and the number of recording areas (Nb) per object of the second table (Boeuf '502: col. 4, Ins. 27-36 and col. 4, In. 53 – note that the head key calculation reads on the lower bound and the tail key reads on the upper bound),

- said range of area determining means determines the range of recording areas to be retrieved in the second table by executing the following computational algorithm from the identifier (aa) and the respective numbers of recording areas (Na, Nb):

$$[(\alpha)a/Na] * Nb + 1 \sim [(\alpha)a/Na + 1] * Nb,$$

where the term inside the square brackets indicates an integral value calculated by a Gauss function (Boeuf '502: col. 4, Ins. 27-36 and col. 4, In. 53 – note that the head key calculation reads on the lower bound and the tail key reads on the upper bound; further note that since the OBK (Old Base Key) of Boeuf '502 subsumes all previous records, the calculation of the OBK reads on a Gauss function).

However, Berkowitz '021, Boeuf '502 and Fenner '136 in combination do not explicitly disclose:

- (Claim 5) further comprising:
 - (Claims 5-6) means for accepting a table join request for joining first and second tables associated with each other by an object and retrieval conditions therefor;

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- (Claims 5-6) means for decomposing the accepted retrieval conditions on a table basis;
- (Claim 5) said retrieval means performs data retrieval processing for the range of recording areas determined by said range of area determining means according to the retrieval condition for the second table.
- (Claim 6) said retrieval means performs data retrieval processing according to the retrieval condition for the second table to determine the logical product of the identifier of a recording area obtained in the retrieval processing and the identifiers of all the recording areas of the range determined by said range of area determining means so as to specify recording areas in which data according to all the retrieval conditions are to be recorded.

Pederson '842 discloses:

- (Claims 5-6) means for accepting a table join request for joining first and second tables associated with each other by an object and retrieval conditions therefor (Pederson '842: col. 4, Ins. 14-34);
- (Claims 5-6) means for decomposing the accepted retrieval conditions on a table basis (Pederson '842: col. 4, Ins. 35-45);
- (Claim 5) said retrieval means performs data retrieval processing for the range of recording areas determined by said range of area determining means according to the retrieval condition for the second table (Pederson '842: col. 4, Ins. 46-56; col. 5, Ins. 20-50).

- (Claim 6) said retrieval means performs data retrieval processing according to the retrieval condition for the second table to determine the logical product of the identifier of a recording area obtained in the retrieval processing and the identifiers of all the recording areas of the range determined by said range of area determining means so as to specify recording areas in which data according to all the retrieval conditions are to be recorded (Pederson '842: col. 4, Ins. 46-56; col. 5, Ins. 20-50).

It would have been obvious to a person having ordinary skill in the art to apply the Berkowitz '021, Boeuf '502 and Fenner '136 manager to the relational join steps of Pederson '842. The motivation to combine is suggested by Berkowitz '021 which discloses that use of the manager as in the Berkowitz '021, Boeuf '502 and Fenner '136 combination provide optimized data operations such as that of the joins of Pederson '842 (Berkowitz '021: col. 1, Ins. 34-50).

Response to Arguments

5. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Specifically, the U.S. Patent references are considered pertinent to the claimed invention, as amended.


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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goddard whose telephone number is 571-272-4020. The examiner can normally be reached on M-F, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 571-272-4023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bdg
6 January 2006


SAFET METJAHIC
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER